



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,608	08/01/2001	Jens Thomas Mueller	225/50240	2520
23911	7590	12/23/2003	EXAMINER	
CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			MERCADO, JULIAN A	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/919,608

Applicant(s)

MUELLER ET AL.

Examiner

Julian Mercado

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-12 is/are allowed.
- 6) ☒ Claim(s) 13, 15 and 16 is/are rejected.
- 7) ☒ Claim(s) 14, 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8/1/01
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 1 and 14 are objected to because of the following informalities:

- a. In claim 1 at line 4, it is suggested to change "and an anode" to --an anode--.
- b. In claim 1 at line 9, it is suggested to change "fuel" to --fuel/coolant mixture--.
- c. In claim 1 at line 10, it is suggested to change "included" to --including--.
- d. In claim 14 at line 6, it is suggested to change "an anion exchanger" to --anion exchanger--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamm et al. (DE 198 078 78) in view of Grot et al. (U.S. Pat. 5,919,583)

For purposes of detailed discussion, the examiner relies on WO9944249 A1 which is an English-language equivalent to DE 198 078 78, as obtained from the EPO website

(<http://ep.espacenet.com/>)

Regarding independent claim 13, Lamm et al. teaches the claimed arrangement for treating a fuel/coolant mixture in a fuel cell, the fuel/coolant mixture being methanol and water. (page 3, 2nd paragraph) An anode chamber [12] is part of the fuel cell. (ib) The arrangement comprises a tank [38] with a line [40] for feeding the fuel/coolant mixture into a mixture-conveying device [42]. (8th paragraph) As to a combined anion and cation exchanger, the examiner notes that applicant in discussion of the abovementioned reference (based on equivalent German Patent Document DE 198 07 878) states the following:

Since, in an application of this type, cations and anions are being removed from the coolant/fuel mixture, it is necessary, for example, for a strongly basic ion exchanger to be correspondingly large design, in order not to become fully laden which is usually entrained in a dissolved fashion in the liquid phase after even a very short operating time. (par. [0005])

Based on applicant's characterization of Lamm et al., the examiner concedes that the ion exchanger [74] in Lamm et al. is a combined anion and cation exchanger. As to this combined anion and cation exchanger being "connected in said line", the ion exchanger is considered connected in said line via connection [44], through supply line [18], through circulation line [50], through gas separator [52] through liquid separator [58] which ultimately directs the collected methanol and water to the ion exchanger. (page 3 last paragraph to page 4 3rd paragraph)

The examiner notes that independent claim 13 is different in scope than independent claim 1 (the latter claim being excluded from the present ground of rejection) Independent claim 1 recites a "circuit system" with the instant line including a combined anion and cation exchanger being "a line for feeding the fuel into the circuit system". By this recitation, the line and circuit system are considered mutually exclusive components of the arrangement, since the line in *feeding the fuel into* the circuit system is requisitely *outside* the circuit system. [emphasis

added] While in Lamm et al. the line [40] is clearly outside rest of a circuit system (assuming arguendo that such a circuit system includes connection [44], supply line [18], circulation line [50], gas separator [52] and liquid separator [58]), the line [40] does not include the combined anion and cation exchanger as it is internal to the circuit system. Absent of a claimed circuit system in independent claim 13 as in independent claim 1, independent claim 13 does not preclude the ion exchanger from being fluidly connected in the instant line.

Lamm et al. does not explicitly teach a cation exchanger. However, the proton conducting membrane [16] in Lamm et al. is considered to naturally flow as cation exchanging so as to facilitate H⁺ ion transport across the membrane. (see Grot et al., col. 1 line 38-54) Additionally, the skilled artisan would find obvious to employ a cation exchange proton conducting membrane for reasons such as employing a membrane which has good conductivity and good thermal and chemical resistance. (col. 1 line 55-62)

Regarding dependent claims 15 and 16, Lamm et al. teaches a heat exchanger [17] upstream and heat exchanger [68] downstream of the membrane cation exchanger. (page 3 6th paragraph, page 4 6th paragraph)

Allowable Subject Matter

Claims 1-12 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record and to the examiner's knowledge do not teach or render obvious the instant invention regarding a line including a combined anion and cation exchanger for feeding fuel/coolant mixture into a circuit system. Lamm et al. as discussed above teaches a combined anion and cation exchanger

within a circuit system and not included in a line for feeding a fuel/coolant mixture into said circuit system.

Claims 14 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claim 14 would be allowable if rewritten in independent form as noted above, as the prior art does not teach or suggest a separate anion exchanger arranged in a bypass as presently claimed. Claim 17 would be allowable if rewritten in independent form as noted above, as the claim in requiring the cation exchanger to be arranged in a bypass precludes Lamm et al.'s teaching of a proton conducting membrane cation exchanger.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Document No. 3118953 (designated as AK) cited in the August 1, 2001 Information Disclosure Statement has not been considered by the examiner as citation of these documents without its accompanying translation, English-language abstract or statement of relevance is not in compliance with MPEP 609. Applicant is requested to provide a translation of this document for the examiner's consideration.

Application/Control Number: 09/919,608
Art Unit: 1745

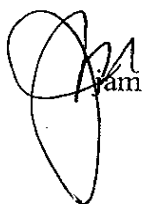
Page 6

The PCT search report, i.e. "German Search Report" cited in the Information Disclosure Statement has not been considered by the examiner as citation of the search report itself, and not the documents cited therein, is not in compliance with MPEP 609. Additionally, the search report is not in the English language.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian A. Mercado whose telephone number is (703) 305-0511. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Julian A. Mercado



Patrick J. Ryan
Supervisory Patent Examiner
Art Unit 1745